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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/802,379

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Patrizio Vinciarelli

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EXAMINER

STERRETT, JEFFREY L

ART UNIT

PAPER NUMBER

2838

DATE MAILED: 08/10/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No. 10/802,379	Applicant(s) VINCIARELLI, PATRIZIO	
	Examiner Jeffrey L. Sterrett	Art Unit 2838	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-43 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-43 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date ____. | 6) <input type="checkbox"/> Other: ____.  |

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1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1, 5, 7-10, 19, 23, 25-28, 36, 37, 40, and 41 are rejected under 35 U.S.C. 102(b) as being anticipated by Steigerwald et al (US 5,274,539).

Steigerwald et al discloses a power distributing apparatus comprising a first regulator (30), a bus, and voltage transformation modules (20, see any of figures 4 or 6-9) including switch (Qa and Qb), transformers (T1 and T2), and rectifiers (SRa and SRb).

3. Claims 2, 17, and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Steigerwald et al.

Steigerwald et al teaches a power distributing apparatus as recited by claims 2, 17, and 20 except for specifying that the voltage transformation module has a conversion efficiency greater than 80%. Voltage transformation modules having a conversion efficiency greater than 80% were well known and old in the art at the time of the invention. It would have been obvious to one of ordinary skill in the art at the time of the invention to have constructed the power distributing apparatus of Steigerwald et al to have any desired conversion efficiency known and old in the art, such as greater than 80%, since this is part and parcel of the normal process of making a specific power supply for a specific purpose.

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4. Claims 3 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Steigerwald et al.

Steigerwald et al teaches a power distributing apparatus as recited by claims 3 and 21 except for specifying that the primary switches operate in a series of operating cycles characterized by power transfer and energy recycling intervals. Operating the primary switches of a power distributing apparatus in a series of operating cycles characterized by power transfer and energy recycling intervals was an old and known expedient in the art at the time of the invention that increases the conversion efficiency. It would have been obvious to one of ordinary skill in the art at the time of the invention to have modified the power distributing apparatus of Steigerwald et al by operating the primary switches in a series of operating cycles characterized by power transfer and energy recycling intervals in order to increase the conversion efficiency.

5. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Steigerwald et al.

Steigerwald et al teaches a power distributing apparatus as recited by claim 4 except for specifying that the voltage transformation module operates at or above 500 KHz. It would have been obvious to one of ordinary skill in the art at the time of the invention to have modified the power distributing apparatus of Steigerwald et al by specifying that the voltage transformation module operates at or above 500 KHz since it has been held that where the general conditions of the claimed invention are disclosed in the prior art discovering the optimum or workable ranges of result effective variables involves only routine skill in the art.

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6. Claims 6, 11, 15, 16, 24, 29, 34, 35, 42, and 43 are rejected under 35 U.S.C. 103(a) as being unpatentable over Steigerwald et al.

Steigerwald et al teaches a power distributing apparatus as recited by claims 6, 11, 15, 16, 24, 29, 34, 35, 42, and 43 except for controlling the bus voltage using a load voltage feedback signal. Controlling the bus voltage provided by a preregulator using a load voltage feedback signal was an old and known expedient in the art at the time of the invention. It would have been obvious to one of ordinary skill in the art at the time of the invention to have modified the power distributing apparatus of Steigerwald et al by controlling the bus voltage using a load voltage feedback signal in order to move the regulation of the output voltage back to a previous conversion stage.

7. Claims 12-14 and 30-32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Steigerwald et al.

Steigerwald et al teaches a power distributing apparatus as recited by claims 12-14 and 30-32 except for utilizing either input or output switches to protect against voltage transformation module or bus faults. Utilizing input or output switches to protect against voltage faults were old and known expedient in the art at the time of the invention. It would have been obvious to one of ordinary skill in the art at the time of the invention to have modified the power distributing apparatus of Steigerwald et al by utilizing input or output switches in order to protect against voltage transformation module or bus faults.

8. Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Steigerwald et al in view of Kajouke et al (US 6,154,381).

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Steigerwald et al teaches a power distributing apparatus as recited by claim 18 except for utilizing the power distributing apparatus in a vehicle. Kajouke et al teaches utilizing a power distributing apparatus in a vehicle was an old and known expedient in the art at the time of the invention. It would have been obvious to one of ordinary skill in the art at the time of the invention to have utilized the power distributing apparatus of Steigerwald et al by utilizing in a vehicle order as the necessary power distributing apparatus.

9. Claim 22 is rejected under 35 U.S.C. 103(a) as being unpatentable over Steigerwald et al.

Steigerwald et al teaches a power distributing apparatus as recited by claim 22 except for specifying that the primary switches operate in a series of operating cycles characterized by power transfer and energy recycling intervals, have a period less than 2 microseconds, and that the voltage transformation modules have a power density greater than 250 Watts/ci. Operating the primary switches of a power distributing apparatus in a series of operating cycles characterized by power transfer and energy recycling intervals was an old and known expedient in the art at the time of the invention that increases the conversion efficiency. It would have been obvious to one of ordinary skill in the art at the time of the invention to have modified the power distributing apparatus of Steigerwald et al by operating the primary switches in a series of operating cycles characterized by power transfer and energy recycling intervals in order to increase the conversion efficiency and it would have been obvious to one of ordinary skill in the art at the time of the invention to have modified the power distributing

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apparatus of Steigerwald et al by utilizing a period less than 2 microseconds, and a power density greater than 250 Watts/ci since it has been held that where the general conditions of the claimed invention are disclosed in the prior art discovering the optimum or workable ranges of result effective variables involves only routine skill in the art.

10. Claim 33 is rejected under 35 U.S.C. 103(a) as being unpatentable over Steigerwald et al.

Steigerwald et al teaches a power distributing apparatus as recited by claim 33 except for specifying that the duty cycle of the voltage transformation module is greater than 90%. Voltage transformation modules having a duty cycle greater than 90% were well known and old in the art at the time of the invention. It would have been obvious to one of ordinary skill in the art at the time of the invention to have constructed the power distributing apparatus of Steigerwald et al to have any desired voltage transformation module duty cycle known and old in the art, such as greater than 90%, since this is part and parcel of the normal process of making a specific power supply for a specific purpose.

11. Claims 38 and 39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Steigerwald et al.

Steigerwald et al teaches a voltage transformation module using an output current feedback signal as recited by claims 38 and 39 except for controlling the voltage transformation module using an output current feedback signal. Controlling the voltage transformation module using an output current feedback signal was an old and known expedient in the art at the time of the invention. It would have been obvious to one of

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ordinary skill in the art at the time of the invention to have modified the power distributing apparatus of Steigerwald et al by controlling the voltage transformation module using an output current feedback signal in order to provide regulation of the output in a desired manner old and known in the art.

12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Rogowsky (US 4,459,492), Dreifuerst et al (US 5,434,770), Yashiro (US 5,530,635), Ikeshita (US 5,631,813), Takahashi et al (US 5,768,117), Kociecki (US 6,198,642), and Dinh et al (US 6,650,556) are cited to show voltage transformation module old and known in the art at the time of the invention.

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeffrey L. Sterrett whose telephone number is (571) 272-2085. The examiner can normally be reached on Monday-Thursday & 8:00am-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Sherry can be reached on (571) 272-2084. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.



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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Jeffrey L. Sterrett  
Primary Examiner  
Art Unit 2838